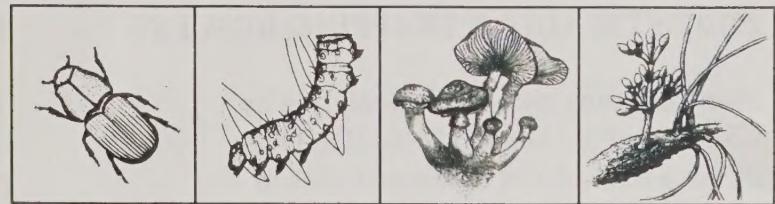


Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

Forest Health Protection

Report 11-05



AUG 18 REC'D

July 2011

2010 NORTH IDAHO DOUGLAS-FIR TUSSOCK MOTH TRAPPING SYSTEM REPORT

Lee Pederson, Entomologist,
 Doug Wulff, Biological Science Technician
 USDA Forest Service, Northern Region, Coeur d'Alene

Tom Eckberg, Lands Program Specialist-Forest Health,
 Neal Kittelson, Exotic Forest Pest Data Coordinator
 Idaho Department of Lands

INTRODUCTION

The Douglas-fir tussock moth (DFTM) Early Warning System (EWS) uses a series of permanent pheromone trap sites to identify increasing populations prior to undesirable tree defoliation, a system modified after Daterman et al. (1979). The trapping system is designed to detect DFTM population changes over large geographic areas, and to give land managers advance warning of an impending outbreak. Region 1 of the US Forest Service (USFS-R1) maintains trapping sites from Potlatch to Lucille, and collaborates with the Idaho Department of Lands (IDL), whose personnel maintains a network of trap sites from Coeur d'Alene south to Moscow and east to Harvard. These sites have been selected on the basis of the impact of potential DFTM defoliation on management objectives.

Five pheromone-baited sticky traps are installed at each trapping site to monitor the flight of male moths. They are placed in a transect with a minimum spacing of 75 ft. between traps. An average trap catch of 25 or more moths per trap, per trapping site is the threshold used to indicate where heavy defoliation may occur the following year. Follow-up sampling is then conducted in these areas to locate potentially injurious population densities (Daterman et al. 1979).

Where trap counts have reached the average trap catch threshold, egg mass sampling should be conducted in the fall and larval sampling should be conducted in the spring of the following year. Larval sampling may also be conducted at sites with historic tussock moth problems before trap counts reach an average of 25 moths per trap, per trap site.

2010 DFTM ADULT TRAPPING RESULTS

Thirty trapping sites were monitored by USFS-R1 (Fig. 1) and 134 by IDL (Fig. 2), for a total of 164 monitored sites in north Idaho. The USFS-R1 mean trap capture was 1.07 moths per trap (Appendix 1), down from 2.06 moths per trap in 2009. No trapping site had captures exceeding an average of 25 or more moths per trap. IDL mean trap capture was 11.7 moths per trap (Appendix 2), compared to 11.9 moths per trap in 2009 (Eckberg and Kittelson 2010).

Twenty-one trap sites in north Idaho had average trap captures \geq 25 per trap, and two sites exceeded 50 moths per trap in 2010. This is a slight decline from 2009, when 22 trap sites averaged \geq 25 moths per trap and 4 trap sites averaged \geq 50 moths per trap. The site with the highest average was trap site 301 in McCroskey State Park, with an average trap catch of 62.8 moths per trap (Appendix 2). When the trap averages are separated by the areas of past outbreaks (Moscow Mountain, McCroskey State Park, and Coeur d'Alene Indian Reservation), only the trap sites in McCroskey State Park increased, from an average of 16.8 in 2009 to 19.7 in 2010.

DEFOLIATION

The 2010 aerial detection survey (ADS) showed no DFTM-caused defoliation on Forest Service lands. However, 8,522 acres of defoliation on State, Tribal, Private, and BLM lands were mapped (ADS 2010). Prior to 2010, the most recent outbreak in north Idaho occurred in 2000. It resulted in three years of defoliation on state and private land between Plummer and Moscow and on adjacent Clearwater National Forest lands, totaling 202,026 acres. An outbreak in 1986 caused only 1 year of visible defoliation for a total of 3,385 acres. Both outbreaks were preceded by increasing numbers of trap captures. Outbreaks of DFTM have occurred in these general areas approximately 8-10 years since the 1940's (Randall 2002, Tunnock 1973).

CONCLUSION

The DFTM, EWS is effective at predicting outbreaks, but *it is not designed nor intended* to predict exactly where defoliation will occur (Sheehan and Ragenovich 2003). Land managers, with consultation from local entomologists, will need to identify and prioritize areas where management objectives are most vulnerable to significant defoliation impacts. In areas where treatment applications may be considered to mitigate impacts, cocoon and/or larval sampling should be conducted in advance to estimate current DFTM populations (Brooks et al. 1978).

In north Idaho, the EWS effectively predicted the 1986 and 2001 DFTM outbreaks, which were preceded by several years of increasing trap catches. However, both outbreaks varied considerably in duration and acres affected (Kegley et al. 2004). This confirms the need for additional egg mass or larval sampling to better predict population levels in times of DFTM population increases (Mason and Torgersen 1983).

The U.S. Forest Service DFTM trapping will continue annually, and at this point we expect trap catches to likely decrease in 2011. To view the IDL 2010 North Idaho Douglas-fir Tussock Moth Pheromone Trapping Report which focuses on lands other than Federal, please refer to the following

URL:

http://www.idl.idaho.gov/bureau/ForestAssist/insect_disease/2010_North_Idaho_DFTM_Report_FINAL.pdf

Literature Cited

Brooks, M., R. Stark, R. Campbell. 1978. The Douglas-Fir Tussock Moth: A Synthesis. Forest Service Science and Education Agency, U.S. Department of Agriculture, Washington, DC. Technical Bulletin 1585. 97-108pp.

Daterman, G.E., R.L. Livingston, J.M. Wenz, and L.L. Sower. 1979. How to Use Pheromone Traps to Determine Outbreak Potential. USDA Agriculture Handbook No. 546.11 p.

Eckberg, T. and N. Kittelson. 2010. 2010 North Idaho Douglas-fir Tussock Moth Trapping System Report. Report No. IDL 10-2, December 2010. 18 pp.

http://www.idl.idaho.gov/bureau/ForestAssist/inspect_disease/2010_North_Idaho_DFTM_Report_FINAL.pdf

Kegley, S.J., D. Beckman, and D.S. Wulff. 2004. 2003 North Idaho Douglas-fir Tussock Moth Trapping System Report. USDA Forest Service, Northern Region, Forest Health Protection Rpt. 04-6. 7pp.

Mason, R.R. 1978. Detecting Suboutbreak Populations Of The Douglas-fir Tussock Moth By Sequential Sampling Of Early Larvae In The Lower Tree Crown. General Technical Report

PNW-238. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. 9pp.

Mason, R.R. and T.R. Torgersen. 1983. Douglas-fir tussock moth handbook. How to Predict Population Trends. USDA Agriculture Handbook No. 610. 7 p.

Randall, C. 2002. Douglas-fir Tussock Moth Biological Evaluation, Palouse Ranger District, Clearwater National Forest, 2001. USDA Forest Service, Northern Region, Forest Health Protection Rpt. 02-5. 33pp.

Sheehan, K.A. and I. Ragenovich. 2003. Douglas-fir tussock moth early warning system trapping summary for Oregon and Washington. 2002. USDA Forest Service, Pacific Northwest Region, Forest Health Protection & Air Management Group/Natural Resources. 8p.

Tunnock, S. 1973. The Douglas-fir Tussock Moth in the Northern Region; a Cartographic History of Outbreaks from 1928 to 1973. USDA Forest Service, Northern Region Rpt. 73-27.

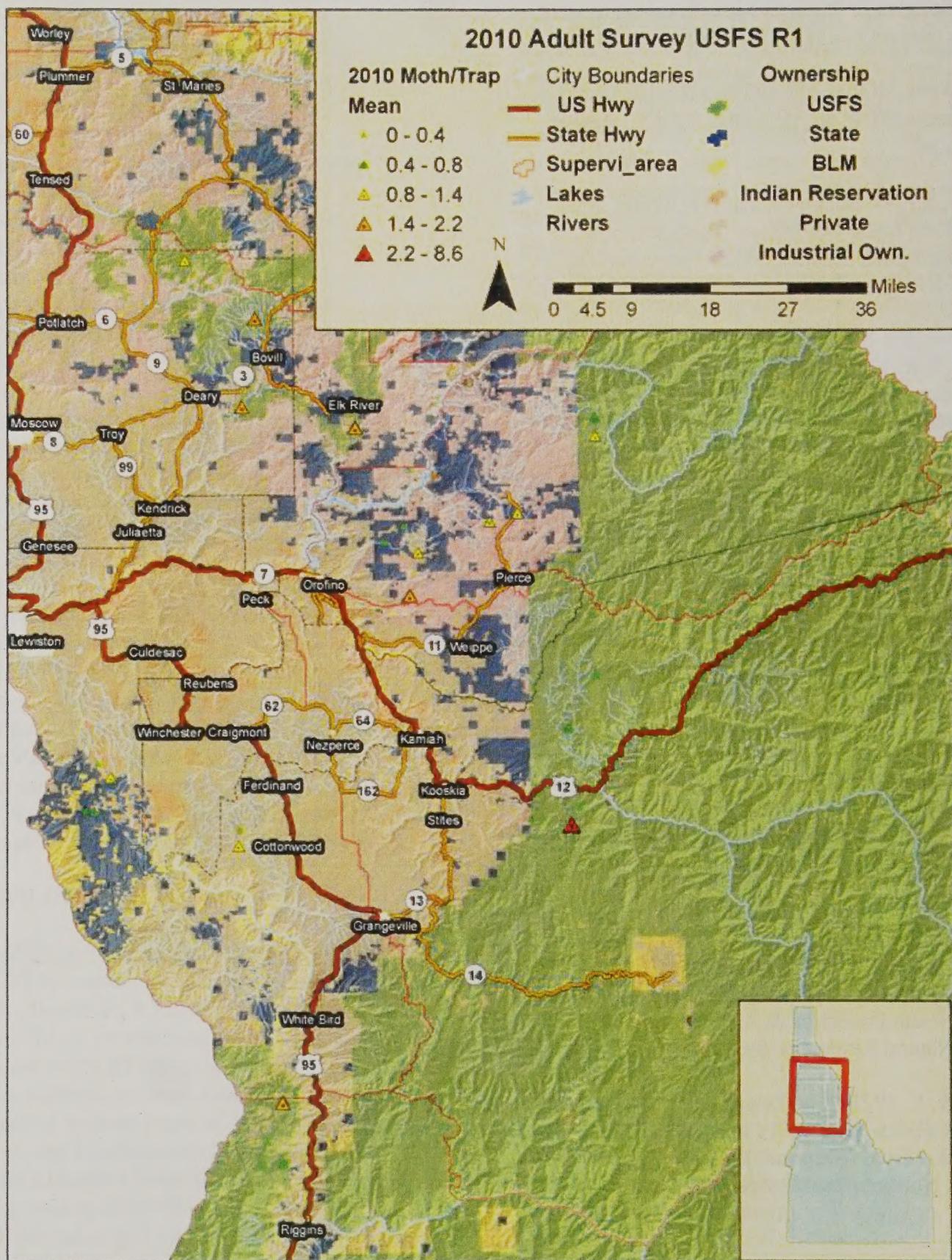


Figure 1. Plots trapped by USFS Region 1 for Douglas-fir tussock moth in 2010.

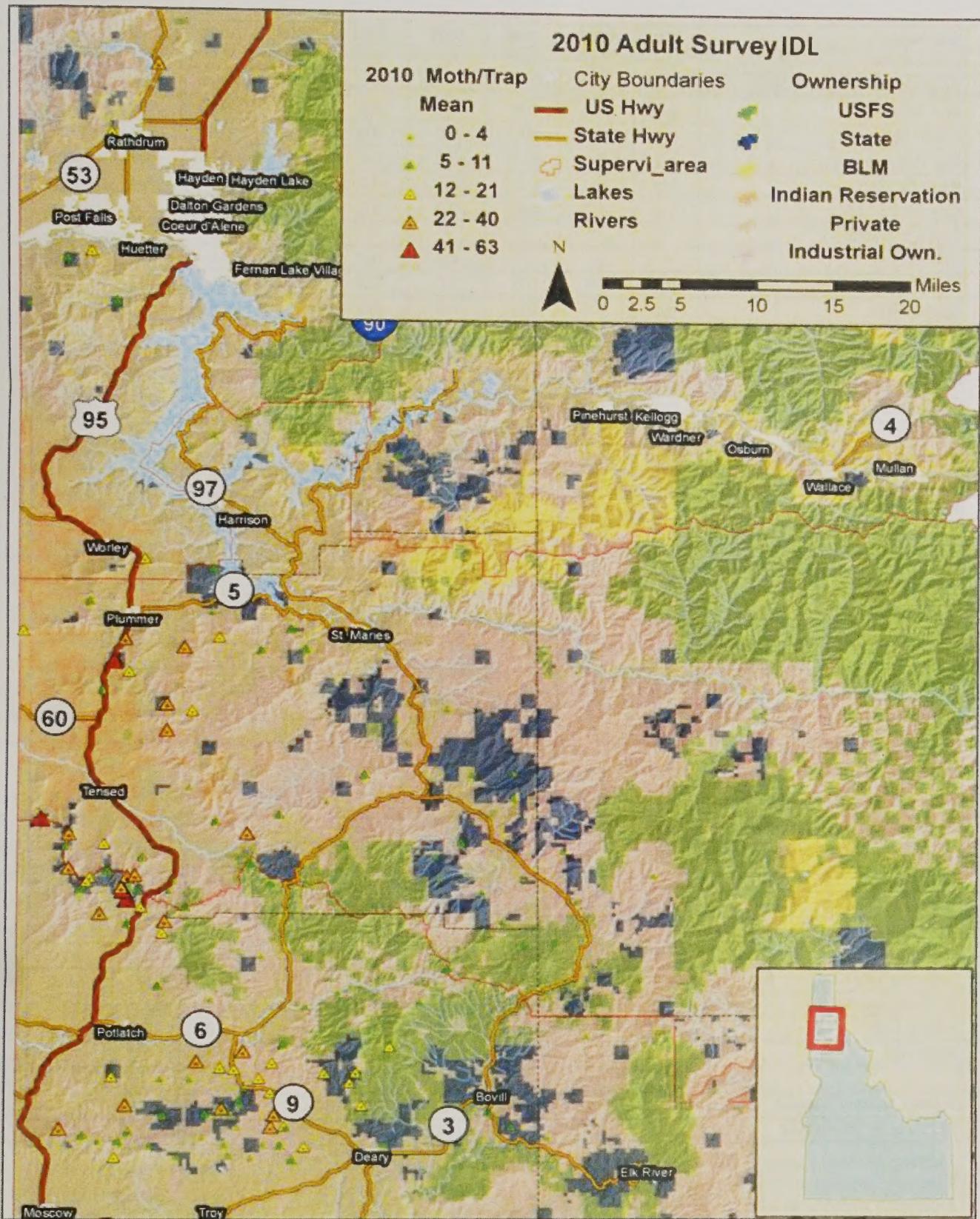


Figure 2. Plots trapped by IDL for Douglas-fir tussock moth in 2010.

Appendix 1. Mean trap catch for USFS monitored plots from Potlatch to Lucille for the past 9 years.

Plot ID	Site Name	2010	2009	2008	2007	2006	2005	2004	2003	2002
1-1	Lodge Point	0.2	3.0	0.0 [†]	0.0	0.0	0.0	0.0	0.2	1.2
1-2	Goddard	*	*	*	*	*	*	0.0	*	*
1-3	Pine Knob	8.6	16.4	0.0 [‡]	0.2	0.3	0.0	0.0	0.2	0.0
1-4	Potato Hill	0.4	1.4	0.0 [‡]	0.0	0.0	0.0	0.0	0.0	0.2
1-5	Big Tinker	0.2	0.0	0.0 [‡]	0.0	0.2	0.0	0.0	0.0	0.6
2-1	Rhett Cr.	0.0	0.0	0.33 [§]	0.0	0.0	0.0	0.0	0.0	0.0
2.2	Christie Cr.	1.6	1.4	0.67 [§]	0.0	0.0	0.0	0.0	0.0	0.0
2.3	Cow Cr. Saddle	*	*	*	*	*	*	0.0	*	0.2
2.4	Low Saddle	*	*	*	0.0	0.4	0.0	0.0	0.0	0.0
2.5	South Cow Cr.	0.8	1.4	0.0 [§]	0.0	0.0	0.0	0.0	0.0	0.0
2.6	Spring Mtns.	0.0	1.4	0.0 [§]	0.0	0.0	*	*	*	*
3.1	Keuterville	0.4	0.4	0.0 [§]	0.0	0.0	0.0	0.0	0.0	0.0
3.2	Cottonwood Butte	1.2	0.4	0.0 [‡]	0.0	0.0	0.0	0.0	0.0	0.0
4-1	Lake Waha	0.2	0.0	0.0 [§]	0.0	0.0	0.0	0.2	0.0	0.0
4-2	Black Pine	0.0	4.0	1.25 [‡]	0.2	0.0	0.0	0.0	*	0.2
4-3	Junction	0.6	0.8	0.0 [§]	0.0	0.0	0.0	0.0	0.0	0.0
4-4	Captain John	0.8	1.0	0.33 [§]	0.0	0.0	0.0	0.0	0.0	0.2
4-5	Webb Cr.	0.0	*	*	0.0	0.0	0.0	0.0	0.0	0.0
4-6	Forest	*	*	*	*	*	*	*	*	*
4-7	New Site (BLM)	1.2	9.4	0.0 [§]	*	*	*	*	*	*
5-1	Johnson	*	*	*	*	0.0	0.0	0.0	0.0	4.8
5-2	Angel Butte	0.2	0.6	0.0	*	0.0	0.0	0.0	0.4	0.8
5-3	Grangemont	1.2	1.0	0.80	1.40	1.40	0.0	0.0	0.4	2.2
5-4	Bergamin Cr.	M	2.0	0.60	4.60	0.0	0.0	0.0	0.0	4.8
5-5	Bald Mtn.	1.2	1.6	0.20	3.4	1.8	0.0	0.0	0.2	9.0
5-6	Summit Landing	1.2	1.8	1.00	3.2	0.6	0.0	0.0	0.2	0.0
5-7	Shin Pt.	1.0	0.2	0.25	0.0	0.0	0.0	0.0	0.0	1.3
5-8	Swanson Cr.	0.8	0.8 [‡]	.40	0.8	0.6	0.0	0.0	1.4	0.0
5-9	Skull Cr.	*	*	*	*	*	*	*	*	*
5-10	Cooper	*	*	*	0.0	0.0	0.0	0.0	0.0	0.2
5-11	Cook Cr. (new site 2009)	2.0	3.6	*	*	*	*	*	*	*
5-12	Whiskey Cr. (new Site 2009)	0.0	1.0	*	*	*	*	*	*	*
6-1	Canyon Junction	0.4	1.2	0.25 [‡]	0.40	0.0	0.0	0.0	0.0	0.80
6-2	Fan Saddle	*	*	*	*	0.0	0.0	0.0	0.0	0.2
6-3	Mud Cr.	0.8	0.0 [‡]	0.0	*	*	*	*	*	*
7-1	Laird Park	*	*	0.0	0.2	0.0	0.0	0.0	0.0	52.2
7-2	Little Bald Mtn.	1.4	3.6	*	0.0	0.0	0.0	0.0	0.2	22.0
7-3	Little Boulder Cr.	2.2	1.0	0.20	0.0	1.2	0.0	0.0	4.0	40.4
7-4	W. Fork Potlatch Rd.	2.0	1.2	0.80	0.0	0.8	0.6	0.0	2.4	40.4
7-5	Elk Cr. Falls	1.8	2.0	0.80	0.2	0.4	0.4	0.0	4.8	15.8
7-6	Morris Cr.	M	1.4	0.75	0.0	0.2	0.0	0.0	0.2	26.5
Number of Sites Trapped		30	31	29	31	33	33	33	32	33
Mean No. of Moths/Site		1.07	2.06	0.30	0.47	0.24	0.03	0.01	0.45	6.82

* Indicates sites not trapped

M Indicates missing in 2010

‡ Indicates 4 traps/site in 2008

§ Indicates 3 traps/site in 2008

Appendix 2. Mean trap catch for IDL monitored plots from Coeur d'Alene to Moscow for the past 10 years.

Plot #	Area	Mean Number of Moths Per Trap									
		2010	2009	2008	2007	2006	2005	2004	2003	2002	2001
3	Lolo Pass	26.4 [‡]	5.2	0.4	0 [‡]	0	0	0	0	8.2	110.2
4	Charles Butte	32.2 [‡]	5.4	0	0 [‡]	0	0	0	0.2	28.2	84.8
5	Peterson Point	8.6	2.2	0	0 [‡]	*	0	0	0.2	15.8	101.0
6	East Dennis	2.3 [‡]	9.0	0.2	0.2 [‡]	0	0	0	1.2	75	101.2
7	East Gold Hill	2.0	3.4 [‡]	0.8	0 [‡]	0	0	0	0.2	14.8	53.8
8	Flat Creek	8.0	1.0	0.2	0 [‡]	0.4	0	0.2	0	7.6	88.0
9	Long Creek	10.2 [‡]	20.6 [‡]	3.4 [‡]	3 [‡]	0.2	0	0.2	0.2	33.6	0.2
10	Paradise Point	9.8	2.0 [‡]	1.2	0.2 [‡]	0.2	0	0.2	0	17	91.8
11	Mineral Mountain	10.8 [‡]	25.0 [‡]	4.2 [‡]	0.5 [‡]	0	0	0	1.8	75.2	56.4
12	Mission Mountain	8.0 [‡]	20.8	0.6	0.2 [‡]	1.2	0	1.2	0.2	25.6	1.6
13	Spring Valley Creek	1.0	0.6	0	0 [‡]	*	0	0	0	5.4	58.0
14	Vassar Meadows	17.0 [‡]	12.8	0 [‡]	0.4 [‡]	0	0	0	0	95.8	102.8
15	Fairview Knob	6.6 [‡]	9.2 [‡]	0.8 [‡]	0.4 [‡]	0	0	0	0.2	39	105.8
21	West Twin (10-115)	4.0 [‡]	5.3 [‡]	1.2 [‡]	0.4	*	0	0	0	8.8	75.4
22	Moscow Mtn (115-114)	0.0	3.6	0	0	0	0	0	0.2	5.8	78.0
101	Benewah	16.4 [‡]	5.0	0	0.2 [‡]	1.4	0	1.4	2.8	52.2	92.4
102	Windfall Pass	29.4 [‡]	32.0 [‡]	12.5 [‡]	0.75 [‡]	0.6	0	0.6	0.6	40.4	99.6
103	Squaw Creek	2.6	1.8	0	0	*	0	0	0.2	9.4	89.2
104	Moses Mountain	7.5	3.4	0.2	0	0	0	0	0.2	6.4	67.8
105	Little John Creek	0.0	2.2	0 [‡]	0.6	0	0	0	1.4	45	78.4
106	Emida Peak	1.4	1.6	0 [‡]	0.4	0	0	0.2	2.6	64.2	75.8
107	North-South Ski Area	2.3	m	0	0	0	0	0	0.6	83.2	107.2
108	Bald Mountain	*	*	*	*	*	0	0	0	25.2	53.8
109	Laird Park	1.4	2.2	m	0	0	0	0	1	66	86.0
110	North Fork Palouse River	0.0	0.4	0	0	0	0	0	1	83.2	75.2
111	Mica Mountain	16.6 [‡]	20.8	0.2	0.2	0	0	0	0.2	67.6	93.6
112	Schwartz Creek	16.2 [‡]	7.0	0.4	0	0	0	0	0.2	80.6	110.6
113	Big Bear Creek	15.2 [‡]	11.6 [‡]	1.8 [‡]	0.6 [‡]	0.6	0	0.6	0.2	47.8	87.0
114	Big Meadow Creek	0.8 [‡]	0.4	0	0 [‡]	0.2	0	0.2	0	11.2	70.2
115	East Twin Mountain	6.8	5.4 [‡]	1.2 [‡]	0.4 [‡]	0.2	0	0.2	0	7.6	85.4
116	Crane Point	6.8	0	0.2	0	*	0	0	0	51	89.0
117	Sheep Creek	21.0 [‡]	20.8 [‡]	2.0	0 [‡]	0.2	0	0.2	0	27.8	83.2
118	West Fork Mission Creek	7.0 [‡]	6.8 [‡]	1.4	0.2	*	0	0	0	22.2	47.6
119	1 Mi N. of Mineral Mtn (11-216)	24.6	2.2	0.2	0	*	0	0	0	25.2	0.2
200	2 mi W of Plummer	7.0 [‡]	34.2 [‡]	2.2 [‡]	2.6	*	0	0	0	16.2	80.2
201	Coon Creek	18.0 [‡]	21.8 [‡]	1.8 [‡]	3 [‡]	2	0	0.4	0.2	21.6	93.8
202	3 mi E of Benewah	*	*	*	*‡	0.2	0	0.2	0.6	21	102.2
203	Benewah Point	8.4	3.4	0 [‡]	0.4	*	0	0	0	8.2	92.4
204	John's Point	*	*	*	*	*	0	0	0	23.8	*
205	3 mi E of Charles Butte	6.5	2.0	0 [‡]	0.8 [‡]	0	0.2	0.2	0.4	63.6	72.6
206	Sunset Mountain	*	*	*	*	*	0	0	0	20.8	*
207	West Fork Emerald Creek	0.0	0.4	0.2	0	*	0	0	0	23.2	*
208	Cedar Butte	1.4	0.4	0	0	*	0	0	0	22.4	76.2
209	Abes Knob	5.6	2.4	0.2	0.2	*	0	0	0	23.8	88.4
210	West Fork Deep Creek	29.6	4.6	0	0.2 [‡]	0.2	0	0.2	0.2	77	90.6
211	Cherry Butte	2.8	0.6	0	0 [‡]	0	0	0.2	0.4	67.2	88.6
212	Jackson Mountain	1.6	1.0 [‡]	1.0	0.2	*	0	0	0	19.6	*

Appendix 2 (cont). Mean trap catch for IDL monitored plots from Coeur d'Alene to Moscow for the past 10 years.

Plot #	Area	Mean Number of Moths Per Trap									
		2010	2009	2008	2007	2006	2005	2004	2003	2002	2001
216	1 mi NW of Mineral Mtn	27.6 [‡]	32.4 [‡]	0.8	0 [‡]	0.4	0	0.4	0.2	1	0.2
217	Head of Sheep Creek (216-117-2)	8.8 [‡]	36.8 [‡]	7.8	0 [‡]	0.2	0	0.2	0.6	21.2	97.2
300	Mission Mountain (#2)	13.8 [‡]	22.4 [‡]	2.2	0	0.4	0	0.4	0.6	6.4	67.0
301	1.5 mi S of Mineral Mtn	62.8 [‡]	37.6 [‡]	2.4	0 [‡]	0.2	0	0.2	0.2	69.4	91.2
302	Middle Fork of Deep Creek 1	48.6 [‡]	38.0 [‡]	3.6 [‡]	1	*	0	0	0	63.8	3.6
303	Middle Fork of Deep Creek 2	27.2 [‡]	33.0 [‡]	1.6	0.2	0.4	0	0.2	1	58	15.8
400	3 mi S of Mineral Mtn	23.8	1.0	0 [‡]	0.6 [‡]	0.2	0	0.2	0.6	75.8	86.6
401	Flynn Butte	3.4	0.6	0	0	0	0	0	3.2	95.2	96.4
402	2 mi SE of Browns Mdw	3.0	4.8	0	0.2 [‡]	0.2	0	0.2	0	15.2	57.4
500	3 mi SW of Harvard	13.4	1.0	0	0 [‡]	0.2	0	0.2	0	18.8	74.6
501	3 mi S of Moon Hill	1.4	1.0	0	0	*	0	0	0	16.2	97.6
502	3 mi W of Crane Point	15.2 [‡]	6.2	0	0.2	*	0	0	0.6	67.6	75.0
503	3 mi N of Stanford Point	17.5 [‡]	17.6 [‡]	1.0 [‡]	1	*	0	0	0	10.2	89.4
504	2 mi N of Stanford Point	12.2 [‡]	10.2	0.0	0 [‡]	0.4	0	0.4	0.2	47.8	86.2
505	1 mi SW of Stanford Point	4.5 [‡]	9.2 [‡]	1.6	0.2 [‡]	*	0	0	0	38.4	47.0
506	1 mi S of Stanford Point	5.8 [‡]	44.4 [‡]	4.0 [‡]	1	*	0	0	0	23.4	67.8
507	1 mi NE of Stanford Point	1.6	2.0	0.8	0	0	0	0	0.8	40.6	87.4
508	1 mi W of Stanford Point	23.4 [‡]	27.0	0 [‡]	0.4	0.2	0	0.2	0	20.6	92.4
509	2 mi NW of Stanford Point	13.8 [‡]	26.6 [‡]	0.8 [‡]	1.2 [‡]	0.6	0.2	0.4	0.4	43.2	81.6
510	Moon Hill	36.0 [‡]	18.2 [‡]	1.2	0 [‡]	0.2	0	0.2	0.8	35	67.2
511	2 mi SE of Moon Hill	20.4 [‡]	21.0 [‡]	2.4	0	*	0	0	0.2	13.2	80.4
512	3 mi S of Mineral Mtn	5.6 [‡]	9.4	0	0	*	0	0	0.2	70.2	*
513	2 mi SW of Moon Hill	13.0	1.2	0 [‡]	1.4	*	0	0	0	9.6	9.2
514	1.5 mi NW of Avon	6.2	3.0	0	0	*	0	0	0	6.8	61.4
600	3.4 mi NNW of Princeton	4.8	4.0	2	0.25 [‡]	*	*	*	*	*	*
601	Macumber Meadows	1.6	0.6	0	0 [‡]	*	*	*	*	*	*
602	S of Shay Hill	0.2	4.4 [‡]	1.2	0.2	*	*	*	*	*	*
603	3 mi. S of Chatcolet	10.8 [‡]	29.2 [‡]	3.6	0	*	*	*	*	*	*
701	Fourmile Creek	28.2 [‡]	12.2 [‡]	2.2 [‡]	0.4	*	0	0	0	9	88.6
702	North of Granite Point	10.2	3.4	0.6	0	*	0	0.2	0	5.8	76
703	Bergs Creek	3.2	2.4	0	0	*	0	0	0	12.2	96.6
704	West Fork Big Bear Creek	8.8 [‡]	9.4 [‡]	0.8	0 [‡]	0.2	0	0.2	0.2	13.2	61
705	2 Mi NW of Stanford PT	34.2 [‡]	43.0 [‡]	3.0 [‡]	1.5 [‡]	0.8	0	0.8	0.4	46.4	89.4
706	1 Mi S. of Iron Mtn	27.8	2.0	0.2 [‡]	0.8 [‡]	*	0	0	0	27.2	87.8
707	Iron Mtn	*	*	*	*	*	0	0	0	6.6	97
708	Little Bear Creek	12.4 [‡]	7.3	0 [‡]	0.4 [‡]	*	0	0	0	65.6	108.6
709	Ruby Creek	10.6	2.4 [‡]	4.0	0	*	0	0	0	50.4	96.2
710	Turnbow Creek	33.0 [‡]	15.8	0 [‡]	2.4 [‡]	1.4	0	1.4	0.2	43	70.6
711	East Fork Flat Creek	20.8 [‡]	17.6	0 [‡]	2 [‡]	2.6	0	2.6	0.2	55	71.4
712	Turnbow Point	1.2	0.2	0.4	0.2	*	0	0	0.2	7.8	38
713	3 Mi S. of Potlatch	13.0 [‡]	8.8 [‡]	5.8	0 [‡]	*	0	0	0	6.6	30
714	Rocky Point	25.6 [‡]	46.6	0.0 [‡]	0.8	*	0	0	0	13.2	79.6
715	Hatter Creek	0.0	0.2	0	0 [‡]	0.6	0	0.6	0.2	7.4	32
716	Head of Hatter Creek	0.4	0	0	0	*	0	0	0	11.8	80.8
717	Nora Creek	0.2	0.2 [‡]	1.4	0	*	0	0	0	21.2	81.4
718	Crummaring Creek	13.6 [‡]	6.4	0.4	0.2	*	0	0	0	12.4	70.4
719	Basalt Hill	10.4 [‡]	7.3	1.2	0.2	*	0	0	0	19	11.6
720	Browns Meadow	30.0 [‡]	18.2	0 [‡]	0.4	0	0	0	0.2	11.2	2.6
721	Smith Creek	2.6	0	0.4	0	*	0	0	0	100.2	70.6

Appendix 2 (cont). Mean trap catch for IDL monitored plots from Coeur d'Alene to Moscow for the past 10 years.

Plot #	Area	Mean Number of Moths Per Trap							200		
		2010	2009	2008	2007	2006	2005	2004	3	2002	2001
722	Prospect Peak	14.4	2.8	0.4	0	*	0	0	0	31.2	56.8
723	West Fork Mission Creek	15.8 [‡]	38.4	0	0	*	0	0	0	27.8	22.2
724	Huckleberry Mtn	30.2 [‡]	14.8	0.2	0 [‡]	*	0	0	0	16.6	77.2
725	North Fork Pine Creek	43.6 [‡]	13.6 [‡]	1.2 [‡]	0.75	*	0	0	0	21.6	93
726	Mineral Creek	5.4 [‡]	10.4	0	0	*	0	0	0	20.2	78
727	South of Sanders	3.6	0.8	0	0	*	0	0	0	77.8	86.8
800	Mason Butte	13.2 [‡]	38.2 [‡]	9.0 [‡]	7.25	*	*	*	0	20.8	63
801	1 mi SW of Moctileme Butte	6.8 [‡]	9.8 [‡]	2.8	0.2	*	*	*	0	30.2	91.4
802	1.9 mi S of Plummer	40.0 [‡]	39.6 [‡]	1.6	0	*	*	*	0	24.8	75.2
803	Little Plummer Creek	14.2 [‡]	57.0 [‡]	17.6 [‡]	5.8	*	*	*	0	18	54.4
804	Syringa Creek	1.3	0.4	0	0	*	*	*	0	21.2	66.4
805	John Point	*	*	*	*	*	*	*	0	20.4	61.6
806	2 mi W of Pettis Point	3.6	0.4	0.2	0	*	*	*	0	22.6	71.2
807	Davis Creek	3.0	m [‡]	1.0	0	*	*	*	0	17.8	55.6
808	Renfro Creek	3.0	0.4	0	0	*	*	*	0	14.8	44.2
809	Crystal Creek	0.6	0.4	0	0.2	*	*	*	0	10.4	29.4
810	Child Creek	0.6	0.6	0.2	0	*	*	*	0	17.2	52.8
811	Hobo Pass	2.5	m [‡]	2.4 [‡]	0.6	*	*	*	0	7.8	25.4
812	Hemlock Butte	1.8	0.5	0.2 [‡]	0.4	*	*	*	0	9.2	28.2
813	Carpenter Peak	3.6	1.6	0	0	*	*	*	0	18.8	57.8
814	Tyson Creek	1.0	2.8	0	0	*	*	*	0	30.2	87.6
815	Heinaman Creek	0.6	m	0.6	0	*	*	*	0	25.2	85.2
816	Green Mtn	4.8 [‡]	5.2	0.4	0	*	*	*	0	31	86.2
817	Willow Creek	1.4 [‡]	6.2 [‡]	2.6 [‡]	1.2	*	*	*	0	22.2	73.2
818	Head of Emerald Creek	5.8	3.6	0	0.6	*	*	*	0	28.2	86
819	East Fork Emerald Creek	1.0	0.2	0	0	*	*	*	0	25	75.2
820	Head of Bobs Creek	2.0	0.6	0	0	*	*	*	0	25.4	79
821	East Fork of Potlatch River	5.0	3.8	0.2	0	*	*	*	0	25.2	67.2
822	Head of Moose Creek	14.8	2.2	0	0.2	*	*	*	0	24.8	69.6
823	Beals Butte	1.2	2.2	0	0	*	*	*	0	39	106.2
900	Hauser	1.8	2.4 [‡]	1.4	*	*	*	*	*	*	*
901	Cougar Bay	6.4 [‡]	5.2 [‡]	1.4	*	*	*	*	*	*	*
902	Marie Creek	2.0	1.2 [‡]	0.8	*	*	*	*	*	*	*
903	Canary Creek	3.8	2.8	0	*	*	*	*	*	*	*
904	Rathdrum	17.2	2.6	*	*	*	*	*	*	*	*
905	State Line (Post Falls)	0.6	2.0	*	*	*	*	*	*	*	*
906	Signal Point (Post Falls)	9.4 [‡]	41.8	*	*	*	*	*	*	*	*
907	Blake Draw Creek	6.6 [‡]	7.0	*	*	*	*	*	*	*	*
908	Coon Creek	33.2 [‡]	71.6	*	*	*	*	*	*	*	*
909	Heyburn Park	11.4 [‡]	9.6	*	*	*	*	*	*	*	*
910	Coyote Lane Post Falls	18.6 [‡]	67.6	*	*	*	*	*	*	*	*
911	State Line (Meredith Rd)	14.4 [‡]	23.2	*	*	*	*	*	*	*	*
912	Lovell Valley Direct Sale	55.2 [‡]	69.6	*	*	*	*	*	*	*	*
913	Twin Lakes	35.6	*	*	*	*	*	*	*	*	*
Number of Sites Trapped:		134	133	124	120	51	98	98	122	122	117
Average Number of Moths per Plot:		11.77	11.86	1.12	0.42	0.33	0.00	0.16	0.23	31.3	71.5

* Indicates Sites Not Trapped
Italics indicates egg mass sample

m indicates traps missing

[‡] Indicates larval survey

NATIONAL AGRICULTURAL LIBRARY



1023103228